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SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
NGUYEN, PHUONGCHAU BA	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/751,001	LI ET AL.	
	Examiner	Art Unit	
	PHUONGCHAU BA NGUYEN	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Terminal Disclaimer

1. The terminal disclaimer filed on 11-23-09 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/748,306 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 20-25 are rejected under 35 U.S.C. 101 because the claimed invention of a machine/computer-readable/accessible medium including machine/computer-executable instructions is directed to non-statutory subject matter. The computer readable medium (also called machine readable medium and other such variations) typically covers forms of <u>non-transitory tangible media</u> and <u>transitory propagating signals</u> *per se*, particularly when the specification is silent. When the broadest reasonable interpretation of a claim covers a signal *per se*, the claims are rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. It is suggested that the claims be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation "<u>non-transitory</u>" to the claim. Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals *per se*.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-2, 7, 11-12, 16, 20, 23, 26, 29-30, 32, 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Ling (6,771,706).

Regarding claim 1,

Ling (6,771,706) discloses a method, including:

transmitting, to a receiver (receiver system 150-fig.1), a first number of training symbols corresponding to a first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) to solicit (to receive) a response including a second number of training symbols corresponding to a second number of communication chains (154a-154r, fig.5);

Ling does not explicitly receiving the second number of training symbols and data without requiring channel state information (CSI) feedback from the

receiver. However, in the same field of endeavor, Hammerschmidt (US 2004/0151146 A1) discloses in figures 11-12 wherein an UL packet received at AP transceiver 200 from a particular (single-antenna) CLT transceiver is used to derive CSI information that may then be used to process a subsequent DL packet for transmission from transceiver 200 to that particular CLT (0070-0075, 0080). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Hammerschmidt's teaching of using the received CSI in downlink transmission to Ling's system with the motivation being to improve communication channel between a multi-branch transceiver and a single-antenna OFDM transceiver so that to extend the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between the AP (Access Point) and CLT (Client Terminal), and/or reduce electrical power consumption.

Regarding claims 2, 12 & 29, Ling further discloses wherein the first number of communication chains (122a-122t, fig.3) corresponds to a number of receive chains (154a-154r, fig.5), and wherein the second number of communication chains (154a-154r, fig.5) corresponds to a number of transmit chains (122a-122t, fig.3).

Regarding claims 7, 16 & 27, Ling further discloses wherein the first number of communication chains corresponds to a number of transmit chains (122a-122t, fig.3), and wherein the second number of communication chains corresponds to a number of receive chains (154a-154r, fig.5).

Regarding claim 11,

Ling (6,771,706) discloses a method, including:

receiving, from a transmitter (transmitter system 110-fig.1), a first number of training symbols corresponding to a first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46); and

transmitting a second number of training symbols corresponding to a second number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1,

lines 43-56 & see also col.3, line 6-col.5, line 46) in response to receipt of the first number of training symbols (154a-154r, fig.5).

Ling does not explicitly transmitting the second number of training symbols and data without sending channel state information (CSI) feedback to the transmitter. However, in the same field of endeavor, Hammerschmidt (US 2004/0151146 A1) discloses in figures 11-12 wherein an UL packet received at AP transceiver 200 from a particular (single-antenna) CLT transceiver is used to derive CSI information that may then be used to process a subsequent DL packet for transmission from transceiver 200 to that particular CLT (0070-0075, 0080). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Hammerschmidt's teaching of using the received CSI in downlink transmission to Ling's system with the motivation being to improve communication channel between a multi-branch transceiver and a single-antenna OFDM transceiver so that to extend the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between the AP (Access Point) and CLT (Client Terminal), and/or reduce electrical power consumption.

Regarding claim 20,

Ling (6,771,706) discloses an article including a machine-accessible medium (memory 114-fig.3) having associated information, wherein the information, when accessed, results in a machine performing (see 0029 & fig.3):

receiving, from a transmitter (transmitter system 110-fig.1), a first number of training symbols corresponding to a first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46); and

transmitting a second number of training symbols corresponding to a second number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) in response to receipt of the first number of training symbols (154a-154r, fig.5).

Ling does not explicitly transmitting the second number of training symbols and data without sending channel state information (CSI) feedback to the transceiver. However, in the same field of endeavor, Hammerschmidt (US 2004/0151146 A1) discloses in figures 11-12 wherein an UL packet received at

AP transceiver 200 from a particular (single-antenna) CLT transceiver is used to derive CSI information that may then be used to process a subsequent DL packet for transmission from transceiver 200 to that particular CLT (0070-0075, 0080). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Hammerschmidt's teaching of using the received CSI in downlink transmission to Ling's system with the motivation being to improve communication channel between a multi-branch transceiver and a single-antenna OFDM transceiver so that to extend the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between the AP (Access Point) and CLT (Client Terminal), and/or reduce electrical power consumption.

Regarding claim 23,

Ling (6,771,706) discloses an article including a machine-accessible medium (memory 114-fig.3) having associated information, wherein the information, when accessed, results in a machine performing (see 0029 & fig.3):

transmitting, to a receiver (receiver system 150-fig.1), a first number of training symbols corresponding to a first number of communication chains

(122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) to solicit (to receive) a response including a second number of training symbols corresponding to a second number of communication chains (154a-154r, fig.5).

Ling does not explicitly receiving the second number of training symbols and data without requiring channel state information (CSI) feedback from the receiver. However, in the same field of endeavor, Hammerschmidt (US 2004/0151146 A1) discloses in figures 11-12 wherein an UL packet received at AP transceiver 200 from a particular (single-antenna) CLT transceiver is used to derive CSI information that may then be used to process a subsequent DL packet for transmission from transceiver 200 to that particular CLT (0070-0075, 0080). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Hammerschmidt's teaching of using the received CSI in downlink transmission to Ling's system with the motivation being to improve communication channel between a multi-branch transceiver and a single-antenna OFDM transceiver so that to extend the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between the AP (Access Point) and CLT (Client Terminal), and/or reduce electrical power consumption.

Regarding claim 26,

Ling (6,771,706) discloses an apparatus, including:

a first number of communication chains to transmit to a device (destination node) a first number of training symbols corresponding to the first number of communication chains(122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46) and to solicit (to receive) a response from the device (destination node) including a second number of training symbols corresponding to a second number of communication chains included in the device (154a-154r, fig.5).

Ling does not explicitly receiving the second number of training symbols and data without requiring channel state information (CSI) feedback from the receiver. However, in the same field of endeavor, Hammerschmidt (US 2004/0151146 A1) discloses in figures 11-12 wherein an UL packet received at AP transceiver 200 from a particular (single-antenna) CLT transceiver is used to derive CSI information that may then be used to process a subsequent DL packet for transmission from transceiver 200 to that particular CLT (0070-0075, 0080). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply

Hammerschmidt's teaching of using the received CSI in downlink transmission to Ling's system with the motivation being to improve communication channel between a multi-branch transceiver and a single-antenna OFDM transceiver so that to extend the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between the AP (Access Point) and CLT (Client Terminal), and/or reduce electrical power consumption.

Regarding claim 31,

Ling (6,771,706) discloses a system, including:

a first device (source node) having a first number of communication chains to transmit a first number of training symbols corresponding to the first number of communication chains (122a-122t, fig.3) (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46); and

a second device (destination node) having a second number of communication chains to receive the first number of training symbols (154a-154r, fig.5), and to respond by transmitting to the first device a second number

of training symbols corresponding to the second number of communication chains (figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.6, line 20).

Ling does not explicitly disclose wherein the first device does not require channel state information (CSI) feedback from the second device. However, in the same field of endeavor, Hammerschmidt (US 2004/0151146 A1) discloses in figures 11-12 wherein an UL packet received at AP transceiver 200 from a particular (single-antenna) CLT transceiver is used to derive CSI information that may then be used to process a subsequent DL packet for transmission from transceiver 200 to that particular CLT (0070-0075, 0080). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Hammerschmidt's teaching of using the received CSI in downlink transmission to Ling's system with the motivation being to improve communication channel between a multi-branch transceiver and a single-antenna OFDM transceiver so that to extend the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between the AP (Access Point) and CLT (Client Terminal), and/or reduce electrical power consumption.

Regarding claim 32, Ling further discloses a first number of antennas corresponding to the first number of communication chains (figs. 1-3 & also

see col.1, lines 43-56); and a second number of antennas corresponding to the second number of communication chains (figs.1-3 & 5, col.1, lines 43-56).

Regarding claim 35, Ling further discloses wherein the number of communication chains (122a-122t, figs. 1 & 3) are capable of being coupled to a number of antennas (124a-124t, figs. 1 & 3) to form a portion of a multiple-input, multiple-output (MIMO) system (figs. 1-3 & 5, col.1, lines 43-56 & see also col.3, line 6-col.6, line 20 and col.11, line 55-col.17, line 60).

Regarding claims 36-37, Ling does not explicitly disclose the first device comprises a plurality of antennas, wherein each antenna is coupled to one of the number of transmit chains and one of the number of receive chains, wherein the transmit chain and the receive chain coupled to the antenna are not shared by other antennas.

However, in the same field of endeavor, Hammerschmidt discloses the first device comprising a plurality of antennas (224a-224b, fig.2), wherein each antenna (224a or 224b) is coupled to one of the number of transmit chains (244a & 244b, fig.2) and one of the number of receive chains (246a & 246b, fig.2), wherein the transmit chain and the receive chain coupled to the antenna are not shared by other antennas (0030). Therefore, it would have been obvious to an artisan at the time of the invention

was made to apply Hammerschmidt's teaching to Ling's system to improve communication channel by extending the range corresponding to a selected transmission bit rate, to increase the transmission bit rate between AP and a CLT (client terminal), to reduce emitted RF power and to reduce electrical power consumption.

6. Claims 3-6, 8-9, 13-15, 17-18, 21-22, 24-25, 28, 30, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling in view of Hammerschmidt as applied to claims 1, 11, 20, 23, 26, 31 above, and further in view of Whitehill (US 2002/0191573 A1).

Regarding claims 13 & 21, Ling discloses (receiver 150-fig.5) receiving the first number of training symbols (modulation symbols) at the second number of communication chains (154a-154r, fig.5).

Ling- Hammerschmidt does not explicitly disclose receiving a clear to transmit response; and estimating a communications channel associated with the second number of communication chains based on the first number of training symbols.

However, in the same field of endeavor, Whitehill discloses receiving a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) and estimating a channel associated with the second number of communication chains based on the first number of training symbols (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 15 & 22, Ling further discloses transmitting the second number of training symbols (modulation symbols) and data (figs. 1-3, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46).

Ling- Hammerschmidt does not explicitly disclose calibrating a number of transmit and receive chains included in the second number of communication chains based on the second number of training symbols.

However, in the same field of endeavor, Whitehill discloses calibrating a number of transmit and receive chains included in the second number of communication chains based on the second number of training symbols (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claim 17,

Ling discloses transmitting the second number of training symbols (modulation symbols) (122a-122t, fig.3, see also figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46).

Ling- Hammerschmidt does not explicitly disclose transmitting a clear to transmit response; and calibrating the second number of communication chains.

However, in the same field of endeavor, Whitehill discloses transmitting a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) transmitting a clear to transmit response; and calibrating the second number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claim 18, Ling discloses (receiver 150-fig.5) receiving the first number of training symbols (modulation symbols) (154a-154r, fig.5, see also figs. 1-2, col.1, lines 43-56 & see also col.3, line 6-col.5, line 46).

Ling- Hammerschmidt does not explicitly disclose receiving a request to transmit; and estimating a channel associated with the second number of communication chains.

However, in the same field of endeavor, Whitehill discloses receiving a request to transmit response (RTS, steps 1000,1010, 1030-fig.5 & see also 0051-0052) and estimating a channel associated with the second number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the

transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 8 & 24, Ling- Hammerschmidt does not explicitly disclose transmitting a request to transmit and the first number of training symbols; and calibrating the first number of communication chains.

However, in the same field of endeavor, Whitehill discloses transmitting a request to transmit response (RTS, step 1000-fig.5 & see also 0050) transmitting a clear to transmit response and the first number of training symbols from the first number of communication chains; and calibrating the first number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the

motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 9, 25 & 34, Ling discloses (receiver 150-fig.5) receiving the second number of training symbols.

Ling- Hammerschmidt does not explicitly disclose receiving a clear to transmit response and estimating a channel associated with the first number of communication chains.

However, in the same field of endeavor, Whitehill discloses receiving a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) and estimating a channel associated with the first number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling-Hammerschmidt's system with the motivation being to optimize the transmission

parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claim 3, Ling- Hammerschmidt does not explicitly disclose receiving a request to transmit at the first number of communication chains; and determining a transmit power level and a receive gain level associated with the first number of communication chains.

However, in the same field of endeavor, Whitehill (US 2002/0191573 A1) discloses (a destination node) receiving a request to transmit (RTS) at the first number of communication chains (i.e.., 154a-154r, fig.5 of Ling), see 0050 & step 1000-fig.5; and determining a transmit power level and a receive gain level (i.e., determining the power-level and gain, see also 0053 and steps 1010 & 1050-fig.5) associated with the first number of communication chains, see 0051-0052. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the

transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 4 & 14, Ling- Hammerschmidt does not explicitly disclose determining multiple transmit power levels and receive gain levels associated with the first number of communication chains.

However, in the same field of endeavor, Whitehill discloses determining multiple transmit power levels and receive gain levels (i.e., determining the power-level and gain, see also 0053 and steps 1010 & 1050-fig.5) associated with the first number of communication chains (i.e.., 154a-154r, fig.5 of Ling), see also 0051-0052. Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 5, 28 & 33, Ling discloses transmitting the first number of training symbols (modulation symbols) from the first number of communication chains (122a-122t, fig.3).

Ling- Hammerschmidt does not explicitly disclose transmitting a clear to transmit response (claim 5) and calibrating a number of transmit and receive chains included in the first number of communication chains (claims 5, 28 & 33).

However, in the same field of endeavor, Whitehill discloses transmitting a clear to transmit response (CTS, step 1030-fig.5 & see also 0051-0052) transmitting a clear to transmit response and the first number of training symbols from the first number of communication chains; and calibrating a number of transmit and receive chains included in the first number of communication chains (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and

gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

Regarding claims 6 & 30, Ling- Hammerschmidt does not explicitly disclose estimating a communications channel associated with the first number of communication chains based on the second number of training symbols.

However, in the same field of endeavor, Whitehill discloses estimating a communications channel associated with the first number of communication chains based on the second number of training symbols (0051-0052 wherein the destination node adjusted the request power from the source node to avoid fading and interference-emphasis added). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Whitehill's teaching of determining power and gain to Ling- Hammerschmidt's system with the motivation being to optimize the transmission parameters for subsequent packet transmission and to avoid immediate congestion problem.

7. Claims 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling in view of Hammerschmidt as applied to claims 1 and 11 above, and further in view of Schramm (US 2002/0110138 A1).

Regarding claims 10 & 19, Ling does not explicitly disclose transmitting a header including a length specification corresponding to the first number of training symbols.

However, in the same field of endeavor, Schramm (US 2002/0110138 A1) discloses transmitting a header including a length specification (i.e., 3.2 µs-fig.1b) corresponding to the first number of training symbols (fig.1b-wherein a header includes a length corresponding to the first number of training symbols). Therefore, it would have been obvious to an artisan at the time of the invention was made to apply Schramm's teaching of OFDM frame's header having the length corresponding to training symbols to Ling's system with the motivation being to allow time duration for channel estimation to provide an

accurate link quality measure of a transmission link in a OFDM transmission system.

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUONGCHAU BA NGUYEN whose telephone number is (571)272-3148. The examiner can normally be reached on Monday-Friday from 8:15 a.m. to 4:45 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PHUONGCHAU BA NGUYEN/
Examiner, Art Unit 2464

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2464